I claim:

- 1. A process which comprises polymerizing an olefin in the presence of an activator and a supported organometallic complex, wherein the supported organometallic complex is prepared by treating a support with an organozinc compound and combining the organozinc-treated support with an organometallic complex comprising a Group 3 to 10 transition metal, M, and at least one indenoindolyl ligand that is bonded to M.
- 2. The process of claim 1 wherein the Group 3 to 10 transition metal is a Group 4 transition metal.
- 3. The process of claim 1 wherein the activator is selected from the group consisting of alumoxanes, alkylaluminum compounds, organoboranes, ionic borates, ionic aluminates, aluminoboronates and mixtures thereof.
- 4. The process of claim 1 wherein some or all of the activator is premixed with the organometallic complex, and this mixture is added to the organozinc-treated support.
- 5. The process of claim 1 wherein the olefin is selected from the group consisting of ethylene, propylene, 1-butene, 1-pentene, 1-hexene and 1-octene and mixtures thereof.
- 6. The process of claim 5 wherein the olefin is ethylene in combination with a second olefin selected from the group consisting of 1-butene, 1-hexene and 1-octene.
- 7. The process of claim 1 wherein the support has been treated with about 0.1 to about 2 moles of organozinc compound per kg support.
- **8.** The process of claim **1** wherein the organozinc compound is selected from the group consisting of dimethylzinc and diethylzinc.
- **9.** The process of claim **1** wherein the support is selected from the group consisting of silicas, aluminas, and silica-aluminas.
- **10.** The process of claim **1** wherein the polymerization is performed at a temperature within the range of about 30°C to about 100°C.
- **11.** A slurry polymerization process of claim 1.
- **12.** A gas-phase polymerization process of claim **1**.

13. The process of claim **1** wherein the indenoindolyl ligand has a structure selected from the group consisting of:

in which R_1 is selected from the group consisting of C_1 - C_{30} hydrocarbyl, dialkylboryl, trialkylsilyl and divalent radicals connected to a second ligand; each R_2 is independently selected from the group consisting of C_1 - C_{30} hydrocarbyl, H, F, Cl and Br, R_3 is selected from the group consisting of C_1 - C_{30} hydrocarbyl, H and divalent radicals connected to a second ligand wherein one of R_1 or R_3 is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

14. The process of claim **1** wherein the organometallic complex has a structure selected from the group consisting of:

wherein M is a Group 3 to 10 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C_1 - C_{30} hydrocarbyl; L' is selected from the group consisting of alkylamido, substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaborolinyl and indenoindolyl; x satisfies the valence of M; R_4 is

selected from the group consisting of C_1 - C_{30} hydrocarbyl, dialkylboryl and trialkylsilyl; each R_2 is independently selected from the group consisting of C_1 - C_{30} hydrocarbyl, H, F, Cl and Br; G is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

- 15. The process of claim 14 wherein L' is selected from the group consisting of substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, and indenoindolyl.
- **16.** The process of claim **1** wherein the organometallic complex has a structure selected from the group consisting of:

wherein M is a Group 3 to 10 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C_1 - C_{30} hydrocarbyl; L' is selected from the group consisting of alkylamido, substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaborolinyl and indenoindolyl; x satisfies the valence of M; R_5 is selected from the group consisting of C_1 - C_{30} hydrocarbyl and H,; each R_2 is independently selected from the group consisting of R_5 , F, CI and Br; G is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

- 17. A method which comprises treating a support with an organozinc compound and combining the treated support with an organometallic complex comprising a Group 3 to 10 transition metal, M, and at least one indenoindolyl ligand that is bonded to M.
- **18.** The method of claim **17** wherein the support is selected from the group consisting of silicas, aluminas, and silica-aluminas.
- **19.** The method of claim **17** wherein the organozinc compound is selected from the group consisting of dimethylzinc and diethylzinc.
- **20.** The method of claim **17** wherein the organometallic complex has a structure selected from the group consisting of:

wherein M is a Group 4 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C₁-C₃₀ hydrocarbyl; L' is selected from the group substituted consisting of alkylamido, or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaborolinyl and indenoindalyl; x satisfies the valence of M; R₄ is selected from the group consisting of C₁-C₃₀ hydrocarbyl, dialkylboryl and trialkylsilyl; each R2 is independently selected from the group consisting of C₁-C₃₀ hydrocarbyl, H, F, Cl and Br; G is a divalent radical selected from the group consisting of hydrocarbyl and heteroatom containing alkylene radicals, diorganosilyl radicals, diorganogermanium radicals and diorganotin radicals.

- 21. The method of claim 17 wherein the complex is premixed with an activator prior to combining with the organozinc-treated support.
- 22. The method of claim 17 wherein the organozinc-treated support is combined with an activator prior to combining with the organometallic complex.